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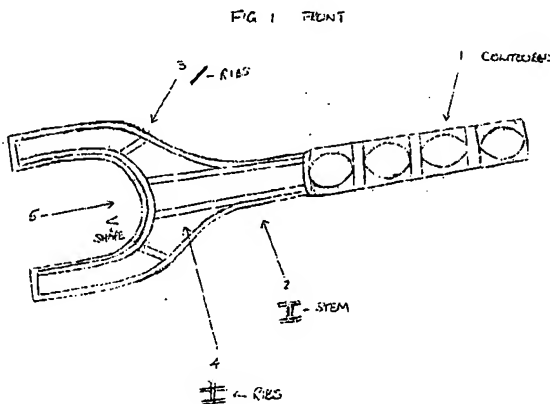
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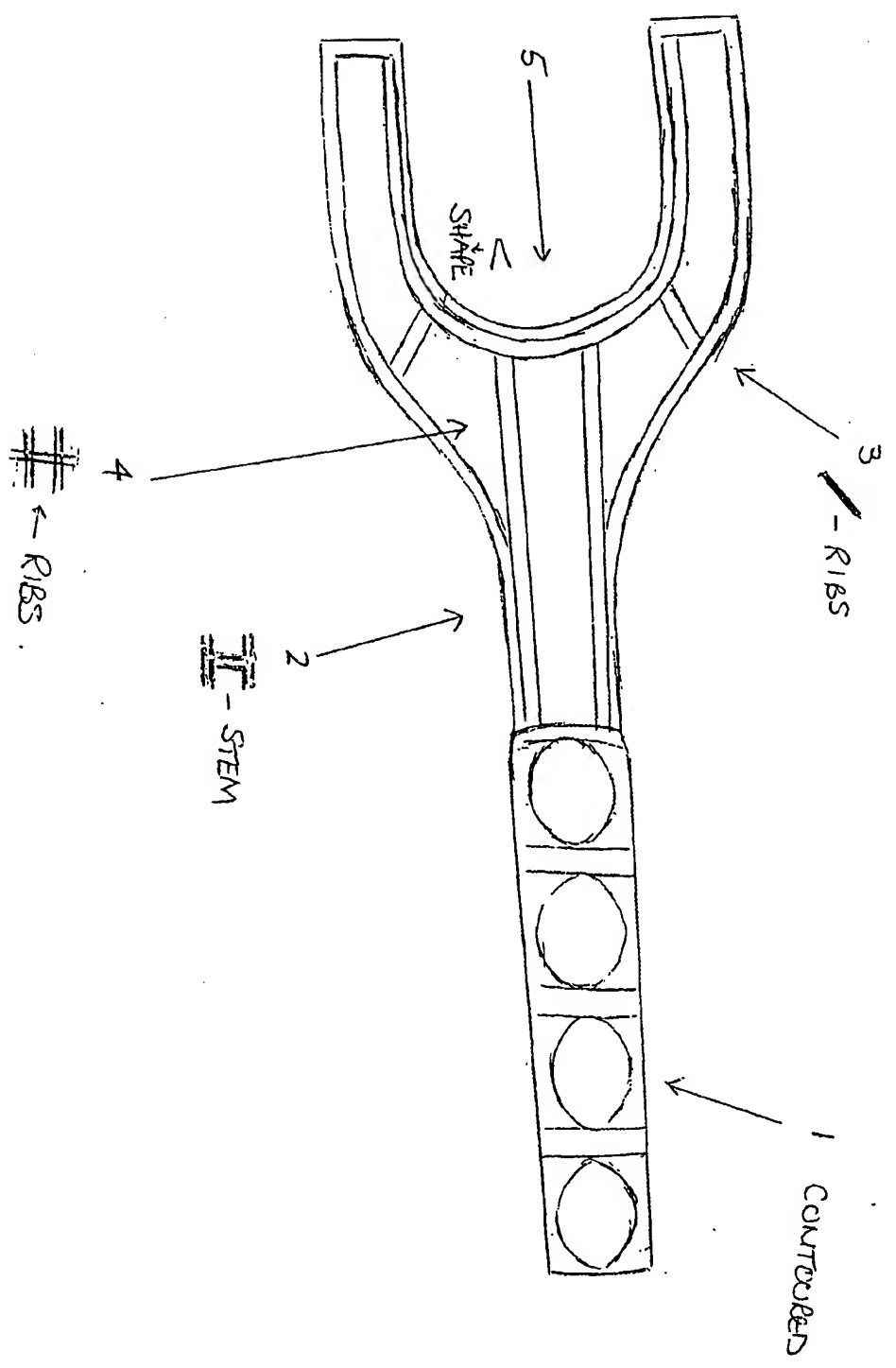
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(54) Abstract Title: Paint roller scraper

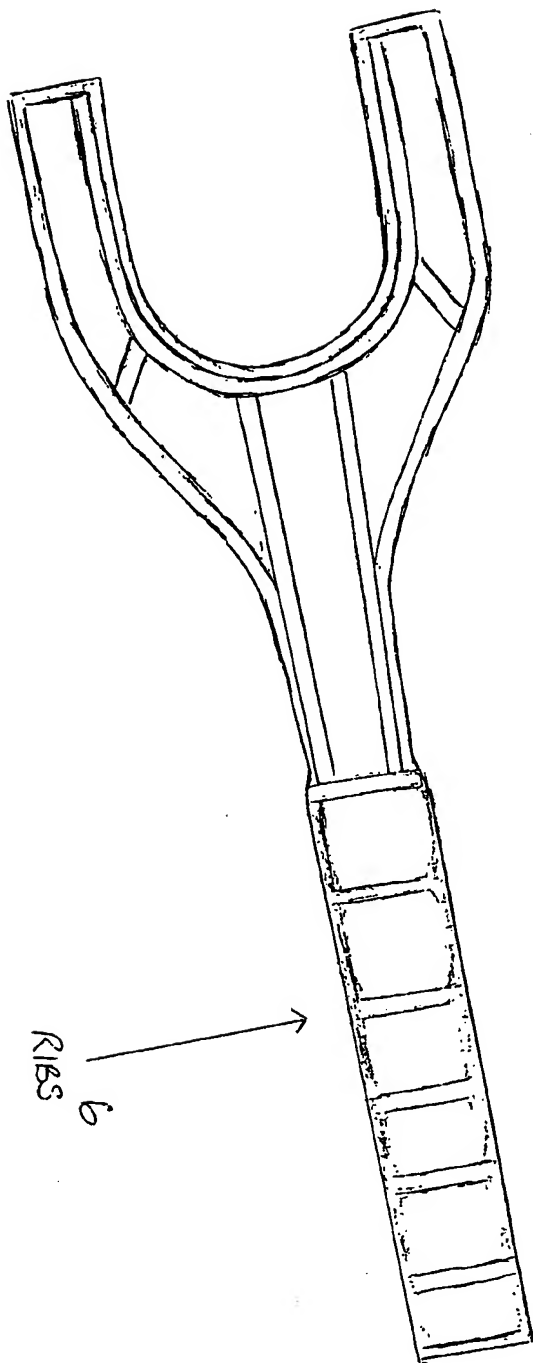
(57) A device for scraping paint of paint rollers comprises a 'U' shaped member with the 'U' defined by a pair of prongs which unite at the head of the 'U' to extend away and form a stem and handle. The device comprises a unitary moulding of e.g. plastics material. The handle is hollow and contoured on one side and is provided with ribs on the other. The handle stem and prong arms are of I beam section and strengthening ribs are provided running diagonally each side running diagonally from the inner to the outer edge of the 'U' notch, either side of its centre. The inner, cleaning edge of the 'U' is chamfered to a 'V' section. The stem widens just before it blends into the handle.



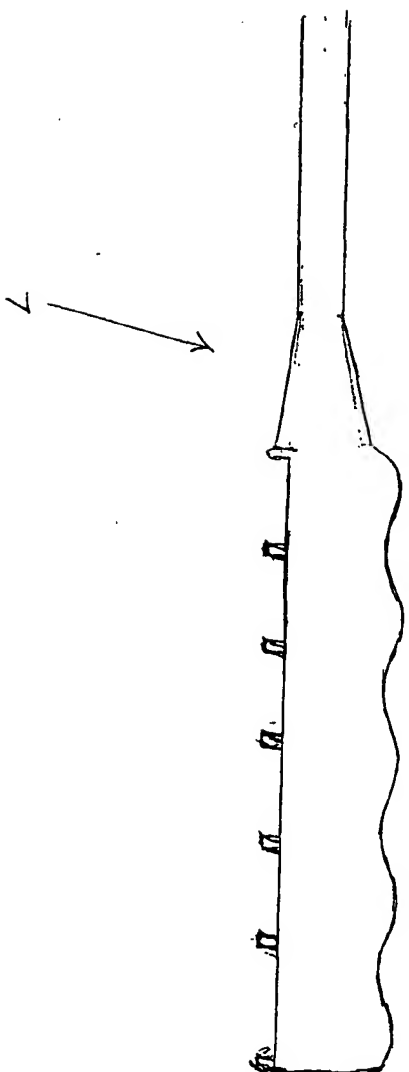
1/3
FIG. 1 FRONT



2/3
FIG 2 BACK



2/3
FIG 3 SIDE



Paint Roller Scraper

There are very few ways to remove paint from a Paint Roller after use. Usually the paint roller is rolled up & down a plank of wood. Or a piece of wood or other implement is run along the length of the roller to remove the excess paint, then the paint roller is washed under a water tap or in buckets of water therefore using a considerable amount of water.

There is a need therefore for an improved roller cleaner which can quickly and efficiently remove the paint using a minimum amount of water.

It is an object of the present invention to provide an improved paint roller cleaner to enhance speed of cleaning.

This invention relates to a device for washing water based paints from a Paint Roller.

The invention relates to a Paint Roller Scraper. Moulded in one piece, the stem is made in an 'I' Beam Construction, the prongs are angled for collection of excess paint.

The Paint Roller Scraper can be made in various sizes to fit all paint rollers.

The object of this invention is to provide a quick & easy method of cleaning Paint Rollers.

The scraper will be made from plastic, PVC or other such materials or a combination of such materials

The scraper is described in the accompanying drawings.

OBJECT OF THE INVENTION

It is the object of this invention to provide an improved way of cleaning Paint Rollers.

PAINT ROLLER SCRAPER

This invention relates to a paint roller scraper moulded in one piece, referring to the drawings this device comprises of:

- 1 A contoured hollow handle
- 2 The stem and prongs are made in the form of an I Beam construction.
- 3 At the U bend of the prongs there is a rib on either side front and back, running diagonally from the inner to the outer edge of the prongs.
- 4 On the stem from the handle to the U of the prongs, there is a rib on either side front & back.
- 5 The inside of the prongs namely the cleaning edge is V shaped.
- 6 The back of the handle is ribbed for extra strength
- 7 The stem at the point where it meets the handle is wider, narrowing to the thickness of the remainder of the stem & prongs.

Background to the invention.

There are very few ways to remove paint from a Paint Roller after use. Usually the paint roller is rolled up & down a plank of wood. Or a piece of wood or other implement is run along the length of the roller to remove the excess paint, then the paint roller is washed in water or white spirits.

The Paint Roller Scraper will quickly and efficiently remove excess paint and aid in easy cleaning.

CLAIMS

1. The Paint Roller scraper consists of handle stem and cleaning prongs moulded in one piece.
2. A Scraper as claimed in claim 1 where the handle is hollow contoured on the front and ribbed on the back.
3. A Scraper as claimed in 1 or 2 where the stem is made of an I Beam construction wider at the handle and narrowing.
4. A Scraper as claimed in 1, 2 or 3 where the stem has two ribs running the length of the stem from the handle to the U of the prongs on both back & front.
5. A Scraper as claimed in 1, 2, 3 or 4 where the U bend of the prongs has a rib on both sides back & front.
6. A Scraper as claimed in 1, 2, 3, 4 or 5 can be made to fit various sizes of rollers.
7. A Scraper as claimed in any proceeding claims which is made from plastic, PVC, or any other such materials or a combination of any such materials.
8. A Paint Roller Scraper substantially as herein described and illustrated in the accompanying drawings.



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Claims searched: 1-8

Examiner: John Wilson
Date of search: 26 February 2003

Patents Act 1977 : Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance	
X,Y	X:1,7 Y:3,6	US 4982471	Bannan - see fig.3, col. 1 lines 54-56
X,Y	X:1 Y:6	US 4324018	Olsson - whole document
Y	3	US 5272782	Hutt - see the figs.& col.1 lines 61-66
Y	6	US 6125497	Galbreath - see fig. 2, & col. 3 lines 60-65
A		WO 98/49019 A1	Bujnowicz - see figs. and p.2 lines 17-18
A		US 6427274 B1	Abbott - whole document
A		US 6421860 B1	Abbott - whole document

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	B	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^v:

A4F

Worldwide search of patent documents classified in the following areas of the IPC⁷ :

A46B; B44D

The following online and other databases have been used in the preparation of this search report :

Online: WPI, EPODOC, PAJ

the link rivet 11, which consists of the same polyoxide as the moulded piece 70 and covers the fastening member from the top, from the sides and from the rear and on its upper side not facing the window is elongated as far as beneath the link 20 (please compare Figure 1), the entire wiper arm is optimally protected against corrosion and has a perfect stylistic appearance.

Figures 10 and 11 show cross-sections of differently constructed moulded plastics pieces 70, which can also advantageously be used in the structural unit according to Figure 1. The cross-sections approximately correspond to those taken on the line VIII-VII of Figure 1. The moulded piece 70 shown in Figure 10 consists of an upper part 72 having a U-shaped-cross section and a lower part 73 having a rectangular cross-section. The two parts 72, 73 are made of the same polyoxide by injection-moulding into a die having several cavities, whose dimensions correspond to the desired size of the parts 72, 73. The separating plane between the parts 72, 73 is placed in such a way in the course of production that the receiver 100 for the wiper arm is completely positioned in the upper part 72. Thereby the upper part 72 has toric swellings 74 along the two longitudinal sides 72a, 72b, on which swellings the lower part 73 with its matchingly formed cavities 75 is locked. Preferably the mounting of the parts 72, 73 on the wiper arm is effected in such a way that at first the upper part 72 is clipped onto the wiper arm from the side not facing the window pane to be cleaned and then the lower part 73 is buttoned on the upper part 72. Then the joints resulting from the production in two pieces do not affect the stylistic impression of the wiper arm.

The moulded piece 70 shown in Figure 11 is substantially constructed like the moulded piece 70 shown in Figure 10. Thus it has an upper part 72 with a U-shaped cross-section and toric bulges 74 along its longitudinal sides 72a and 72b and a lower part 73 with a rectangular cross-section. However in this case the lower part 73 is integrally connected with one longitudinal side 72a of the upper part 72 by a film hinge 76. This has the great advantage that the lower part 73 cannot be lost before it is mounted on the wiper arm. The plastics parts shown in Figures 10 and 11 can in particular be mounted easily and therefore are also suitable for retrofitting by nonprofessionals.

The wiper arm according to Figure 5 is enclosed by a jointless moulded plastics piece 70 which, beginning from the connecting piece 40 covers all longitudinal sides of the wiper rod over their entire length and the central wall and the side walls of the link 20 over their entire length and the side opposite to the central wall as far as to the C-yoke. In contrast to the moulded piece 70 shown in

Figure 1 the moulded piece 70 shown in Figures 5 and 6 from the wiper rod 30 to the C-yoke 60 resembles a spoiler and is very thick. It has a clublike cross-section over its entire length, whereby the area 77 curved towards the wiper rod 30 acts as a wind deflecting face. This embodiment has the great advantage that no further means are necessary to improve the aerodynamic behaviour of the wiper arm.

The wiper arm according to Figure 7 is also surrounded by a jointless moulded plastics piece 70, which from the connecting piece 40 covers the wiper rod 30 on all longitudinal sides over their entire length and the central wall and the side walls of the link 20 over their entire length and the side opposite to the central wall as far as to the C-yoke.

However in this case the moulded plastics piece 70 is provided with a bore 78 running in the longitudinal direction of the wiper rod, which bore serves as a duct for the washing liquid. The bore 78 is recessed from the underside of the moulded piece 70 and extends through the latter from the front end of the link 20 to the connecting piece 40. The connecting piece 40 has a bore 43, which is aligned with the bore 78 and is connected with it by a connection piece 110 of a flexible plastics material, which has a slightly greater outside diameter than the diameter of the bores 78, 43 at the ends facing each other. Therefore the two bores 78, 43 are interconnected in a leakproof manner. The bore 43 ends at a side face of the connecting piece 40 in a bent end 43a into which a nozzle body is buttoned. In the rear end 78a of the bore 78 is inserted the rubber hose 80 which extends through the hollow space enclosed by the link 20 and the moulded piece 70 and leaves the structural unit through an opening recessed in the area of the C-yoke and conducts to a washing liquid container not shown in the drawing. This embodiment has the advantage that an optimal washing liquid supply to the wiper blade is possible.

The link 20 of the wiper arms shown in Figures 12 to 15 is articulated behind the wiper shaft 12 via a link rivet 11. The moulded plastics piece 70 is elongated rearwards and also covers the fastening member 10. Thereby the moulded plastics piece 70 shown in Figure 12 consists of a polyurethane foam and is made by foam-moulding around the entire wiper rod 30 with the exception of its hook enabling the connection with the wiper blade and foam-moulding around the link 20 and the fastening member 10 from the top and from the side, while the moulded plastics piece 70 of Figures 13 to 15 is composed of two parts 72 and 73 which are separately injection-moulded and thereafter put around the wiper arm like a coat and locked with each other. Thereby bolt-shaped studs 72c are injection-moulded on the part

72 forming the upper Part which studs are conducted through apertures 36 in the wiper rod 30 and ensure a rivet-like connection of upper part 72 and wiper rod 30 after having been hot-formed and pressed in direction to the wiper rod 30. Thereby it is taken care that the upper part 72, which in the area of the wiper rod 30 is injection-moulded with about the same thickness as the walls of the link, is held at a spacing to the wiper rod 30 by a flange-like area 72d of the studs 72c, in order to prevent that the link 20 with its front edges presses bucklings into the moulded plastics piece 70, so that the optical impression would be affected.

The links 20 of the two wiper arms and the two moulded plastics pieces 70 thereby have apertures 20a and 70a, through which the nut 12a, if required, is accessible without tilting the wiper arm, which nut holds the fastening member 10 on the wiper shaft 12. A cap 20 is clipped in the apertures 20a and 70a, which cap ends in a plane with the side of the moulded plastics piece 70 not facing the window pane, so that also in this case the uniform impression of the wiper arm surface is ensured.

Thereby the contact pressure of the wiper arms is provided by means of compression springs 130 which are formed as cylindric helical springs and surround a pin 131, which is rotatably articulated round a pin 132 on the front end 13 of the fastening member 10. As Figures 12 and 13 show by this kind of articulating the compression spring on the front end 13 of the fastening member and the link behind the wiper shaft 12 and below the wiper arm fastening place 12a a particularly narrow and flat wiper arm is created.

On its end articulated on the pin 132 the pin 131 has stop shoulders 131a for the first end 130 of the compression spring 130. With its other end the pin 131 extends through a hole in a stud of the wiper rod 30, which stud is rectangularly bent downwards and against which in the embodiments shown in Figure 12 the compression spring 130 with its second end 130b directly abuts. In the embodiment shown in Figure 13 the compression spring 130 abuts against the stud of the wiper rod 30 via an intermediate member 133 of a plastics material with good gliding properties. The intermediate member 133 encompasses the second end 130b of the compression spring 130 and on its side facing the wiper rod stud is crowned. Thus, when curved areas of the window pane are wiped and the wiper arm is tilted from the window pane, the compression spring can carry out a compensating movement relative to the wiper rod 30 rapidly and without squeaking or bending.

In the example shown in Figures 13 to 15 the compression spring 130, from below until close to its first end 130a, is covered by the lower part 73 of the moulded plastics piece

70 having a curved end at a spacing from the compression spring 130. In its area in perpendicular direction flush with the compression spring 130 the lower part 73 is longitudinally slotted and open as Figure 15 shows. In the example shown in Figure 12 the compression spring 130 is covered from below by a separately made cover 140 which joints the lower ends of the moulded plastics piece 70 without edges. The cover 140 has a recess 141, which, shortly behind the perpendicular wall 142 of the cover 140, begins with a width corresponding to the fastening member 10, extends in this width to the front as far as to the first end 130a of the compression spring 130 and then continues in a width corresponding to the diameter of the compression spring 130 and ends in front of the second end of the pin 131. Owing to the recess 141 according to Figure 12 or the longitudinal slot of the lower part 73 according to Figure 15 the links 20 can be tilted from the window pane or from the fastening member 10 without damaging or demounting the moulded plastics piece 70 and the cover 140 by the spring 130 and the fastening member 10.

In the two examples the moulded plastics piece 70 is thereby elongated beyond the junction place 150 of wiper arm and wiper blade to the front and is designed much thicker than in the other areas, in order to form a spoiler which can cover the wiper blade over the entire length and a height as great as possible. Thereby in the example shown in Figure 12, in which the moulded plastics piece 70 consists of a polyurethane foam, the wiper rod 30 runs as far as to the free front end of the spoiler, so that its stability against bending or buckling is ensured. In this case the wiper blade is fastened on a hook 151, which is riveted with the wiper rod 30 via a sheet metal portion 152 before the foam-moulding action. The wiper arm shown in Figure 13 has a wiper rod of usual length. This wiper rod is laterally bent at right angle to form a hook 151 on which the wiper blade is fastened. Here the upper part 72 of the moulded plastics piece 70 is elongated beyond the hook 151 and forms the spoiler.

Finally it is pointed out that also several of the details shown in the various examples can be simultaneously included in a single wiper arm. Which details this could be will depend on the actual requirements.

CLAIMS

1. A wiper arm, especially for wiper systems on motor vehicles, comprising a link (20) which is substantially formed in the manner of a channel having two side walls (22) and at least one connecting wall (21) which firmly encompass a wiper rod (30) on whose end not facing the link (20) a wiper blade may be articulated via a connector (40) and

- which link (20) and which wiper rod (30) are made from metallic materials and provided with a protective coating, characterised in that the coating consists of a moulded plastics piece (70) which on all sides and over almost its entire length encloses the structural unit consisting of the wiper rod (30) and the link (20) and elements (10, 11, 50, 60, 80, 130, 131, 132, 133) accommodated in this link.
2. A wiper arm according to claim 1, characterised in that the moulded plastics piece (70) has a thickness which equals at least to the thickness of the walls (21, 22) of the link (20) and which changes over the length of the structural unit.
3. A wiper arm according to claim 1 or claim 2, characterised in that the moulded plastics piece (70) is made of a resilient plastics material by injection moulding, casting, foam or dip moulding.
4. A wiper arm according to claim 3, characterised in that the moulded plastics piece (70) has a receiver (100) which closely surrounds the structural unit.
5. A wiper arm according to claim 3, characterised in that the moulded plastics piece (70) encloses the structural unit at a given spacing over part of its length and is preferably lockably connected with the structural unit via studs (72c).
6. A wiper arm according to any one of claims 2 to 5, characterised in that the moulded plastics piece (70) is made of a polyoxide, preferably of a copolymer of polymethylene oxide, by injection-moulding around the structural unit or by injection-moulding around a core which resembles the structural unit.
7. A wiper arm according to any one of claims 2 to 5, characterised in that the moulded plastics piece (70) is made of a pasty solution of a vinylchloride or vinylacetate-polymerisate by casting around the structural unit or casting around a cast core which resembles the structural unit.
8. A wiper arm according to any one of claims 2 to 7, characterised in that the moulded plastics piece (70) is formed without joints.
9. A wiper arm according to any one of claims 2 to 7, characterised in that the moulded plastics piece (70) consists partially or entirely of two parts (72, 73), which are detachably connected with each other along at least one longitudinal side (72a, 72b).
10. A wiper arm according to claim 9, characterised in that along one longitudinal side (72a) the parts (72, 73) are connected to form a single piece by a film hinge (76).
11. A wiper arm according to claim 9 or 10, characterised in that the two parts (72, 73) are connected by matching elements (74, 75) of locking connections.
12. A wiper arm according to any one of claims 9 to 11 as appendant to claim 4, characterised in the separating plane(s) is(are) provided in such a way that the receiver (100) lies in the part (72) not facing the window pane to be cleaned.
13. A wiper arm according to any one of the preceding claims, characterised in that the moulded plastics piece (70) is formed as a spoiler over a certain part of its longitudinal extension.
14. A wiper arm according to claim 13, characterised in that the moulded plastics piece (70) has an approximately triangular cross-section, wherein at least one side face acts as a wind deflecting face.
15. A wiper arm according to any one of the preceding claims, characterised in that the link (20) is provided with apertures (23).
16. A wiper arm according to claim 15, characterised in that both the central wall (21) and the side walls (22) of the link (20) are penetrated by apertures (23) in such a way that the link (20) consists mainly of ribs which are arranged relative to one another in the manner of a network.
17. A wiper arm according to claim 16, characterised in that the link (20) with its side walls (22) is articulated to a fastening member (10) via link rivet (11), which fastening member is connected with a driven wiper shaft (12) in a torsionally firm manner.
18. A wiper arm according to claim 17, characterised in that the moulded plastics piece (70) covers both the set-head and the closing head of the link rivet (11).
19. A wiper arm according to claim 18, characterised in that the fastening member (10) is covered by a plastics cap (9) which in the longitudinal direction of the wiper arm extends as far as to the link rivet (11).
20. A wiper arm according to claim 19, characterised in that the moulded plastics piece (70) overlaps the cap (9) in its area positioned in front of the link rivet (11) in the longitudinal direction of the wiper arm.
21. A wiper arm according to any one of the preceding claims, characterised in that the wiper rod (30) is provided with locking means (31, 32, 33, 34, 35, 36) for securing in a form-fit manner at least one of the piece parts (20, 40, 70) to be connected with the said wiper rod.
22. A wiper arm according to claim 21, characterised in that in the vicinity of the junction point with the link (20) several notches (31) are stamped in the wiper rod (30) and that by embossing the notches (31) hump-shaped projections (32) are formed which protrude from the surface of the wiper rod (30).
23. A wiper arm according to claim 16 or claim 22, characterised in that the link (20) consists of a slightly softer steel sheet than the wiper rod (30) and is dug in the notches (31).
24. A wiper arm according to any one of

claims 21 to 23, characterised in that in the vicinity of the junction point with the connecting member (40) at least one set of gear teeth (33) is stamped in the wiper rod (30) and that by embossing the gear teeth (33) sharp-edged projections (35) are formed, which protrude from the surface of the wiper rod (30).

25. A wiper arm according to claim 24, characterised in that the connecting member (40) is made of a resilient plastics material and that the sharp-edged projections (35) are dug in the plastics material.

26. A wiper arm according to any one of the preceding claims, characterised in that the connecting member (40) and the moulded plastics piece (70) change into each other at least almost without edges and joints.

27. A wiper arm according to claim 26 and according to any one of claims 15 to 25, characterised in that the moulded plastics piece (70) and the connecting member (40) have two bores (78, 43) which are aligned with each other and substantially run in the longitudinal direction of the wiper rod and serve as a washing liquid duct.

28. A wiper arm according to claim 26 or 27, characterised in that the connecting member (40) and the moulded plastics piece (70) are made as a single piece.

29. A wiper arm according to claim 27 or claim 28 as appendant to claim 27, characterised in that the bores (78, 43) are interconnected by a connection piece of a resilient material in a leakproof manner.

30. A wiper arm according to claim 27, claim 28 as appendant to claim 27 or claim 29, characterised in that a flexible hose (80) is conducted through the link (20) and inserted in the free end (78a) of the bore (78) situated in the moulded plastics piece (70).

31. A wiper arm according to claim 27, claim 28 as appendant to claim 27, claim 29 or claim 30, characterised in that a nozzle body may be buttoned into the free end (43a) of the other bore (43).

32. A wiper arm according to claim 17 or claim 18, characterised in that the moulded plastics piece (70) is elongated rearwards and covers the fastening member (10).

33. A wiper arm according to claim 32, characterised in that the moulded plastics piece (70) has an aperture (70a) which may be closed by a lockable cap (120), through which a fastening means (12a) is accessible through an aperture (20a) in the link (20) by which fastening means the fastening member (10) on the wiper shaft (12) is held.

34. A wiper arm according to any one of the preceding claims, characterised in that the moulded plastics piece (70) extends beyond the junction point (150) between wiper arm and wiper blade and covers the wiper blade over at least almost its entire length in the manner of a spoiler.

35. A wiper arm according to claim 34,

characterised in that the wiper rod (30) extends beyond the junction point (15) with the wiper blade and reaches at least almost as far as to the front end of the moulded plastics piece (70).

36. A wiper arm according to any one of the preceding claims, characterised in that the open side of the link (20) is covered by the moulded plastics piece (70) or by a cover (140) which is joined to the ends of the moulded plastics piece (70) without edges and possibly has a recess (141) which permits the link (20) to be tilted from the window pane without demounting or damaging the moulded plastics piece or the cover (140) by the spring (50, 130).

37. A wiper arm for wiper systems on motor vehicles substantially as herein described with reference to and as illustrated in Figures 1 to 4, Figures 5 and 6, Figure 7, Figure 12 or Figures 13 to 15, with or without reference to any one of Figures 8 to 11 of the accompanying drawings.

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